

Remarks

The Office Action mailed May 17, 2007 has been carefully considered. The Attorney for the Applicants wishes to thank Examiner Johnson for the courteous teleconference of August 24, 2007. Pursuant to the request of Examiner Johnson, a copy of the PCT application published as WO 02/096953 (Appendix A) and the English translation of the priority document (Appendix B) are attached hereto. Favorable reconsideration of the remaining claims in the present application is respectfully requested.

Claims 16, 23, 31, 54, and 67 have been amended. No new matter has been added to these claims.

Claim Rejections

In Paragraph 4 of the Office Action, Claims 1-37 and 54-70 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Iguchi et al. US 5,811,531. It will be shown that Iguchi et al. does not include each and every element of the present invention as set forth in the claims, and as required by anticipation under 35 U.S.C. § 102(b). In particular, it will be shown that all the rejected claims include the limitation of “*partially neutralized, uncrosslinked, carboxyl-containing polysaccharide that is preswelled and subsequently dried*” and that Iguchi et al. does not, either expressly or inherently, describe an “*partially neutralized, uncrosslinked, carboxyl-containing polysaccharide that is preswelled and subsequently dried.*” Furthermore, it will be shown that the present invention includes differences over partially neutralized carboxyl-containing polysaccharide by a comparative example from the original application.

Anticipation under 35 U.S.C. § 102(b) requires that “each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference.” *See, e.g., Verdegaal Bros., Inc. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). In addition to this case, M.P.E.P. 2131.03 III A specifically states “[a]nticipation under § 102 can be found only when the reference discloses exactly what is claimed and that where there are differences between the reference disclosure and the claim, the rejection must be based on §103.” The case law and M.P.E.P. both require that what is claimed, including each and every limitation, be either expressly or inherently described in a single prior art reference.

All the claims are directed to a post crosslinked superabsorbent polymer comprising at least one partially neutralized, uncrosslinked, carboxyl-containing polysaccharide wherein the polysaccharide is **preswelled and subsequently dried**. Then the dried polycarboxypolysaccharide is surface-post crosslinked by means of a surface crosslinker. Independent claims 18, 23, 31, 55 and 70 also require that the polysaccharide, before performing surface-crosslinking, is preswelled and subsequently dried.

Paragraph 4 of the Office Action states that Iguchi ‘531 discloses an absorbent comprising polysaccharide particles, crosslinking agent, a water soluble compound(abstract), salts, and organic fibrous material. Iguchi et al. is directed to a manufacturing process of an absorbent comprising a resin obtained by reacting the surface of (A) **polysaccharide** particles with a (B) crosslinking agent having at least two functional groups which can react with the (A) **polysaccharide** particles characterized by treating the (A) **polysaccharide** particles with an aqueous solution of the (B) crosslinking agent and a (C) water-soluble compound. However,

Iguchi et al. does not, directly or inherently, disclose that the polysaccharide is preswelled and subsequently dried as set forth in all the current claims of the present application.

Iguchi et al. discloses to use polysaccharides with uronic acid groups, since these polymers have a good absorbing ability against high concentrated salt solutions (see column 2, lines 27-49). However, there is no hint in Iguchi et al. that the polysaccharides used therein are preswelled and subsequently dried prior to surface crosslinking. On the contrary, in the Examples of Iguchi et al., only untreated Xanthan gum has been used (see column 6, line 22).

Since Iguchi et al. fails to disclose a post crosslinked superabsorbent polymer comprising at least one partially neutralized, uncrosslinked, carboxyl-containing polysaccharide wherein the polysaccharide is preswelled and subsequently dried according to the pending claims, the rejection of claims 1-37 and 54-70 under 35 U.S.C. § 102(b) as being anticipated by Iguchi et al. is improper, and should be withdrawn.

Claims 1-37 and 54-70 are rejected under 35 U.S.C. 103(a) as obvious over Iguchi et al. First and as set forth above, Iguchi et al. does not disclose each and every element of the pending claims. It is set forth in paragraph 5 of the Office Action, that if any differences can be shown for the product-by-process claims 1-37 and 54-70 as opposed to the product taught by Iguchi et al., such differences have been obvious in the absence of showing of unexpected results. These unexpected results were shown in the priority document for the present application.

The present application has priority from patent application PCT/EP02/05799, that published as WO-A-02/096953 (attached hereto as Appendix A and the English translation attached hereto as Appendix B). The priority document includes Referential Example 1 that shows that a coated polysaccharide without prior swelling and drying has a significantly lower

$AAP_{0.7} = 10.9$ g/g as compared to the present invention of 16.1. As stated in the following Comparative Example 1, the pretreatment of the polysaccharide, of swelling and drying, the surface of the absorbents according to the invention in such a way that the result is a more effective distribution and action of the postcrosslinking agent and a significantly improved absorbency against pressure.

The following is a copy of the translation of Comparative Example 1 from the priority document.

Comparative Example 1

20 g of carboxymethylcellulose (Cekol® 50,000, degree of neutralization 98.6%) were coated without prior swelling with 8 g of a solution of 40 g of $Al_2(SO_4)_3 \cdot 18 H_2O$ in 100 g of DM water and 21.6 g of acetone (0.8% of Al^{3+} based on CMC) and dried at 80°C for 2 hours, both steps being carried out as in Inventive Example 3). The characteristic absorption data were then determined:

Sample No 1.1 comp: $TB = 21.1$ g/g $AAP_{0.7} = 10.9$ g/g

In contradistinction to Sample No 3.2, which was pretreated and postcrosslinked according to the invention, Comparative Example 1) required a distinctly larger amount of crosslinker (0.8% of Al^{3+} based on CMC instead of 0.28%), even though the two samples were based on the same starting material. The absorbency against pressure (0.7 psi) of Sample No 3.2 according to the invention is at 16.1 g/g significantly higher than that of Comparative Example No 1.1 comp. The pretreatment modifies the surface of the absorbents

according to the invention in such a way that the result is a more effective distribution and action of the postcrosslinking agent and a significantly improved absorbency against pressure.

The following table has been created to show the Examiner the unexpected results of the present invention as shown in Sample 3.2 as compared to the coated polysaccharide without prior swelling and drying, as set forth in the last paragraph of the above Comparative Example 1.

Table 1.

No	Precursor of inv. ex.	Swell Time [minutes]	Drying Conditions	Crosslinker solution	%Al ³⁺ /CMC [%]	TB [g/g]	AAP _{0.7} [g/g]
3.2	1.2	30min	80°C for 12hrs	A	0.28	22.6	16.1
Comp 1.1		0	0		0.8	21.1	10.9

In view of the fact that the amount of surface crosslinker was higher in the comparative example 1.1, one skilled in the art would have expected a high AAP_{0.7}, which was not the case. In fact the present invention had a higher AAP_{0.7} by about 48% over the comparative example.

Since Iguchi et al. fails to disclose a post crosslinked superabsorbent polymer comprising at least one partially neutralized, uncrosslinked, carboxyl-containing polysaccharide wherein the polysaccharide is preswelled and subsequently dried according to the pending claims, and a showing of unexpected results has been made, the rejection of claims 1-37 and 54-70 under 35 U.S.C. § 103(a) as obvious over Iguchi et al. is improper, and should be withdrawn.

Conclusion

In light of the amendments and remarks presented herein, Applicants submit that the present application is in condition for allowance, and such action is respectfully requested. If, however, any issues remain unresolved, the Examiner is invited to telephone Applicant's counsel at the number provided below.

Respectfully submitted,

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